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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/451,628	11/30/1999	AVI TEPMAN	AMAT/4285/MD	9301

32588 7590 01/15/2003

APPLIED MATERIALS, INC.  
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SANTA CLARA, CA 95050

EXAMINER

ALEJANDRO MULERO, LUZ L

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 01/15/2003

27

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.	Applicant(s)	
09/451,628	TEPMAN ET AL.	
Examiner	Art Unit	
Luz L. Alejandro	1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 November 2002.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 6, 8, 11-16, 18-22, 28 and 29 is/are pending in the application.
- 4a) Of the above claim(s) 2, 3 and 6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 8, 11-16, 18-22, 28 and 29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

The finality in the office action mailed 4-22-02 has been withdrawn.

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

Claims 1, 8, 11-13, 15-16, 18-19, and 28-29 are rejected under 35 U.S.C. 102(e) as being anticipated by Bright et al., U.S. Patent 6,312,525.

Bright et al. shows the invention as claimed including an apparatus for processing substrates comprising: a transfer chamber 22 comprising one or more access ports 28; one or more load lock chambers 18 disposable about the transfer chamber; one or more process chambers 14 disposable about the transfer chamber; a plumbing tray 44 disposable adjacent the transfer chamber and having facility connections for each process chamber and load lock chamber; and a chamber tray (see valve 38, for example) disposable adjacent each process chamber, load lock chamber

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and transfer chamber, the chamber tray in fluid communication with the facility connections of the plumbing tray, wherein each process chamber is disposable on each chamber tray (see figures 1-4 and col. 5-line 5 to col. 7-line 46).

Claims 1, 8, 11-13, 15-16, 18-19, and 28-29 are rejected under 35 U.S.C. 102(a) as being anticipated by Mooring et al., WO 99/03133.

Mooring et al. shows the invention as claimed including an apparatus for processing substrates comprising: a transfer chamber 22 comprising one or more access ports 28; one or more load lock chambers 18 disposable about the transfer chamber; one or more process chambers 14 disposable about the transfer chamber; a plumbing tray 44 disposable adjacent the transfer chamber and having facility connections for each process chamber and load lock chamber; and a chamber tray (see valve 38, for example) disposable adjacent each process chamber, load lock chamber and transfer chamber, the chamber tray in fluid communication with the facility connections of the plumbing tray, wherein each process chamber is disposable on each chamber tray (see figures 1-4 and page 6, line 25 to page 10, line 20).

Claims 1, 11, 13-16, 18-20, and 28-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Rubin et al., U.S. Patent 4,852,516.

Rubin et al. shows the invention as claimed including a multi-chamber apparatus for processing substrates including initial load lock chamber for storage 102 (see fig. 7) connected to a multitude of process chambers 100 each chamber including a modular

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plumbing tray 172 (see fig. 1) and a chamber tray including links which include water lines, gas lines, vacuum lines, drain lines, and communication lines (see col. 3, line 65 to col. 8-line 60). Furthermore, note that any of the individual process chambers 100 of Rubin et al. can be considered a "transfer chamber" since the wafer is physically being moved from one side to the other.

With respect to claim 28, note from fig. 1 that the chamber tray and the process chamber form a modular unit. Regarding claim 11, note that the corner post 106 of adjacent chambers are at the access ports (see fig. 7). Furthermore, with respect to claim 13, the process chamber and the chamber tray are mounted to a support frame which includes all the chambers (see fig. 7). With respect to claim 14, note that the support frame includes rollable support members 110 for each chamber (see fig. 1). Regarding claim 16, note that the facility connections (water lines, gas lines, vacuum lines, drain lines, and communication lines) are in fluid communication with the facility connection of the plumbing tray 172 (see fig. 1). Furthermore, with respect to claims 18-20, note that the claimed robot transfer mechanism 180 is clearly shown in fig. 7.

With respect to claim 29, note in fig. 1 that the plumbing tray 172 is directly underneath the processing/transfer chamber 100.

Claims 1, 11, 13-16, 18, and 28 are rejected under 35 U.S.C. 102(e) as being anticipated by Lei et al., WO 99/03137.

Lei et al. shows the invention as claimed including a transfer chamber 90; a modular plumbing tray 10 adjacent the transfer chamber and having connections from

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the facility to the process chambers 30; and a chamber tray adjacent the one or more of the process chambers including an injection control valve 18, the chamber tray having facility connections connected to one or more of the facility connections in the plumbing tray (see figs. 2-3 and page 3, line 24 to page 7, line 9). Note that there are various manifold configurations clearly shown in fig. 3 and that the gas delivery system 10 can be rigidly mounted to the process chamber 30 on a common module support frame 50. In addition, components of the gas delivery system may include pumps and gas supplied and the respective plumbing required.

With respect to claim 28, note that the reference clearly states that the apparatus is a modular system design. Regarding claim 11, note that fig. 2 clearly shows the modular unit mounted to the transfer chamber at the access port. Furthermore, with respect to claim 13, the process chamber and the chamber tray are mounted to a support frame which includes all the chambers (see fig. 2). With respect to claim 14, note that the support frame includes rollable support members 52 for each chamber (see fig. 2). Furthermore, with respect to claim 18 it is inherent that the apparatus further comprises the claimed transfer mechanism in order to transport the substrate.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mooring et al., WO 99/03133.

Mooring et al. is applied as above but fails to expressly disclose wherein the transfer chamber comprises two robots, at least one lift which comprises a support shaft, pedestal, lift assembly, and rotational assembly, and wherein the lift is rotatable to maintain an orientation of the work pieces as the work pieces pass between the transfer robots. Regarding the transfer chamber comprising two robots, a prima facie case of obviousness has been established because duplication of parts was held to have been obvious (see *St. Regis Paper Co. v. Beemis Co. Inc.* 193 USPQ 8, 11 (1977); *In re Harza* 124 USPQ 378 (CCPA 1960)). With respect to the transfer chamber comprising the particular handling means including a lift and a pedestal, official notice was taken in the office action mailed 4-22-02 and since such official notice has gone unchallenged, the limitations are considered to be admitted prior art.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mooring et al., WO 99/03133 in view of Rubin et al., U.S. Patent 4,852,516.

Mooring et al. is applied as above but fails to expressly disclose wherein the support frame comprises rollable support members. Rubin et al. discloses rollable support members 110 in a support frame 102 of a modular apparatus (see fig. 1 and col. 3-line 63 to col. 4-line 16). In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Mooring et al. so as to include the rollable support members of Rubin et al. because this allows for easier removal and insertion of the modular components of the apparatus.

Claims 20-22 are rejected under 35 U.S.C. 103(a) as being obvious over Bright et al., U.S. Patent 6,312,525.

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR



1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(I)(1) and § 706.02(I)(2).

Bright et al. is applied as above but fails to expressly disclose wherein the transfer chamber comprises two robots, at least one lift which comprises a support shaft, pedestal, lift assembly, and rotational assembly, and wherein the lift is rotatable to maintain an orientation of the work pieces as the work pieces pass between the transfer robots. Regarding the transfer chamber comprising two robots, a prima facie case of obviousness has been established because duplication of parts was held to have been obvious (see *St. Regis Paper Co. v. Beemis Co. Inc.* 193 USPQ 8, 11 (1977); *In re Harza* 124 USPQ 378 (CCPA 1960)). With respect to the transfer chamber comprising the particular handling means including a lift and a pedestal, official notice was taken in the office action mailed 4-22-02 and since such official notice has gone unchallenged, the limitations are considered to be admitted prior art.

Claim 14 is rejected under 35 U.S.C. 103(a) as being obvious over Bright et al., U.S. Patent 6,312,525 in view of Rubin et al., U.S. Patent 4,852,516.

The Bright et al. reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(I)(1) and § 706.02(I)(2).

Bright et al. is applied as above but fails to expressly disclose wherein the support frame comprises rollable support members. Rubin et al. discloses rollable support members 110 in a support frame 102 of a modular apparatus (see fig. 1 and col. 3-line 63 to col. 4-line 16). In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Mooring et al. so as to include the rollable support members of Rubin et al.

because this allows for easier removal and insertion of the modular components of the apparatus.

Claims 8 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lei et al., WO 99/03137.

Lei et al. is applied as above but lack explicit anticipation of a transfer chamber containing six access ports and the chamber tray mounted separately to the transfer chamber. However, Lei et al. describe a multitude of access ports connecting the process chambers and the transfer chamber as described above and a variety of configurations of the gas delivery system 10 which includes both the plumbing and chamber trays and how they are mounted (see col. 4, lines 8-40). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form at least six access ports in the transfer chamber and mount the chamber tray to the transfer chamber of Lei et al. depending upon the particular process flow being conducted and the desired design choice.

Claims 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rubin et al., U.S. Patent 4,852,516.

Rubin et al. is applied as above but lacks anticipation of the particular wafer handling means including a lift and a pedestal. In response, the examiner takes official notice that these are well known types of wafer handling techniques and would have been obvious to implement in the primary reference of Rubin et al.. Since these facts were not seasonably challenged, they are taken to be admitted prior art.

***Response to Arguments***

Applicant's arguments filed 11-6-02 have been fully considered but they are not persuasive. With respect to the argument that rejections involving the Lei et al. reference were improper because of 35 USC 103(c), the examiner respectfully contends that such arguments are rendered moot by the use of Lei et al., WO 99/03137 which qualifies as prior art under 35 USC 102(a). Furthermore, applicant argues with respect to Rubin et al., U.S. Patent 4,852,516 that the reference fails to disclose a plumbing tray disposable adjacent a transfer chamber, since reference number 172 in Figure 1 is a service conduit disposed on a floor. However, the examiner respectfully contends that as broadly stated the service conduit is adjacent a transfer chamber, as shown by the multi-chamber apparatus of Fig. 7 through which a plumbing tray 172 is disposed under each chamber 100. Clearly these chambers can be considered process chambers as well as transfer chambers because the wafers are being processed and transferred therethrough. Applicant has not defined the phrase "transfer chamber" to exclude any processing being conducted therein so the examiner's broad interpretation of transfer chamber is proper. Furthermore, applicant argues reference number 104 of Rubin et al. is not a chamber tray as defined by the claims. However, the fact that reference number 104 is available for flexible use is enough to consider number 104 to be modular. Additionally, the limitation that the chamber tray and the process chamber form a modular unit is only contained in independent claim 28. Concerning applicant's contention that a load lock chamber is not shown about the transfer chamber in Rubin et

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al., it appears that figure 7 shows load lock chambers at opposing sides of the multi-chamber structure, which appears to read on the claim.

With respect to the Lei et al. reference, applicant argues that the plumbing tray as claimed is not shown. The discussion of the plumbing tray limitation with respect to the Lei et al. reference was clearly stated in the advisory action mailed 12-3-01, but for applicants convenience it reads as follow: With respect to Lei et al., the reference teaches that the gas delivery system uses gas lines which are only about three feet at most (see col. 3, lines 57-61). Based on this discussion, inherently the plumbing tray will be disposed "adjacent" the processing chambers. Applicant is reminded that "adjacent" is a broad term and it is proper to interpret the word "adjacent" in its most broadest and reasonable sense.

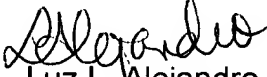
With respect to the argument with respect to the taking of official notice, such notice was taken in the office action mailed on 9-27-00 and never challenged. According to the MPEP, failure to seasonably challenge official notice results in the limitations being considered prior art (see MPEP 2144.03).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luz L. Alejandro whose telephone number is 703-305-4545. The examiner can normally be reached on Monday to Thursday from 7:30 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory L. Mills can be reached on 703-308-1633. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

  
Luz L. Alejandro  
Patent Examiner  
Art Unit 1763

January 9, 2003